United States Department of Agriculture
Grain Inspection, Packers and Stockyards Administration
Federal Grain Inspection Service

Directive

FGIS 3330.1 11/21/95

RADIO COMMUNICATIONS MANAGEMENT, OPERATIONS, AND MAINTENANCE

1. PURPOSE

This Directive:

a. Establishes the policy, delegations of authority, and responsibility for the management, operation, and maintenance of radio communications within the Grain Inspection, Packers and Stockyards Administration (GIPSA), Federal Grain Inspection Service (FGIS);

b. Prescribes procedures for requesting radio frequency authorizations, purchasing new or replacement equipment, and conducting radio communications with cooperating agencies;

c. Outlines the responsibilities of the Director, Field Management Division (FMD), Field Office Managers (FOM), and other field office personnel relative to the operation and maintenance of radio equipment;

d. Establishes guidelines for uniform radio operating procedures;

e. Provides guidelines for the safe use of radio equipment; and

f. Establishes procedures for properly maintaining and securing radio equipment.

2. REPLACEMENT HIGHLIGHTS

This Directive replaces FGIS Directive 228.1, dated 6-15-93.

3. POLICY

a. FGIS will conduct radio communications in accordance with the regulations and procedures established by the National Telecommunications and Information Administration, the International Telecommunications Union, and the Federal Communications Commission.

b. FGIS will maintain a radio communications management system to ensure use of current technology and systems compatibility, and satisfy, but not exceed, Agency needs.

4. RESPONSIBILITIES

a. The Director, FMD will:

(1) Establish radio communications procedures, including acquisition guidelines and requirements for interagency agreements.

(2) Coordinate requests for new and modified radio frequency assignments with the U. S. Department of Agriculture's representative to the Interdepartmental Radio Advisory Committee.

(3) Purchase radio equipment and design field radio communications systems in accordance with Department and Agency directives.

(4) Ensure that portable equipment is approved for operation in National Electric Code Class II, Division 1, Group G and Class I, Division 1, Group D hazardous locations. Approval shall be by a recognized national laboratory such as Underwriters Labs, Factory Mutual, etc.

(5) Require all new equipment to be evaluated by the Safety and Health Staff to ensure its safe operation in the work environment.

(6) Establish a program to provide for the repair and maintenance of radio equipment.

b. FOM's are Responsible for All Radio Equipment Assigned to Their Field Offices, and will:

(1) Conduct radio communications within authorized guidelines as provided for in this Directive.

(2) Identify problems with existing radio communications systems and report them to the Chief, Weighing and Equipment Branch (WEB).

(3) Initiate requests for radio equipment or systems.

(4) Initiate requests for intercommunications with cooperating agencies.

c. Field Office Personnel Who Use Radio Equipment:

(1) Will be responsible for the radio equipment assigned to them in accordance with Animal and Plant Health Inspection Service (APHIS) and FGIS instructions.

(2) Found using the radio equipment negligently may be held liable for the expense of replacing or repairing the equipment.

(3) May have disciplinary action taken for failing to follow the proper procedures in the use and care of the radio equipment.

NOTE: The emphasis on security and accountability is not intended to reduce the usefulness of these radios. It is only to make users aware of the value of the equipment and their responsibility to maintain it in serviceable condition.

5. GENERAL PROCEDURES

a. Obtaining Frequency Authorization. All permanent locations which transmit must have a radio frequency authorization. Emergency programs are excluded from this requirement. Requests for radio frequency assignment or modification to an existing assignment will be made by using APHIS Form 200-R, Request for Radio Frequency Assignment or Modification (Attachment 1). Forward requests to:

Chief, Weighing and Equipment Branch
Field Management Division
Room 1640, South Building
P.O. Box 96454
Washington, DC 20090-6454

b. Purchasing Radio Equipment. All requests for procurement of radio equipment will be forwarded to WEB, FMD, for review and approval by the Director, FMD. WEB will then forward copies of all approved requests to APHIS, Field Servicing Office (FSO), Field Personnel Services.

Radio communications equipment will be purchased under the U.S. Forest Service consolidated procurement contract or from the General Services Administration (GSA) contract schedule and in accordance with Department and Agency directives.

Radio Communications with Cooperating Agencies. All requests for equipment loans and authorizations to use assigned radio frequencies will be forwarded in writing, to the Chief, WEB, for review and submitted to the Director, FMD, for approval.

d. Reporting Stolen, Lost, or Damaged Radio Equipment. All stolen or lost radio equipment will be reported to WEB, the local police department, and the local Federal Bureau of Investigation (FBI). The FOM will submit a written report stating all circumstances surrounding the incident. The report will include, but not be limited to:

(1) Location where the incident occurred (name of building, floor, room, etc.);

2) Date and time of occurrence;

(3) Type of incident (stolen or lost);

(4) Details surrounding the incident;

(5) Witnesses to the incident, if any;

(6) Description of the radio equipment, including serial numbers, model numbers; and

(7) Name, position, and duty station of employees involved in the incident.

A Form AD-112, Report of Unserviceable, Lost, or Damaged Property, will be initiated in accordance with APHIS instructions and submitted to APHIS, FSO, Property Section.

6. OPERATING PROCEDURES

a. General Information. The radio, including battery and insulated antenna, when intact, is safe to use under normal working conditions. The units are dust-proof and have been approved for use in industrial areas by Factory Mutual and the U.S. Bureau of Mines. Battery chargers are to be located

and used only within FGIS laboratories and field offices. The battery chargers are not to be used or located in any room where flammable liquids or gases are used or stored.

b. Guidelines for Using Radios in a Dusty Atmosphere.

(1) Do not change batteries while in a dusty atmosphere.

(2) Use undamaged antennas.

(3) Keep the radio completely intact. Repairs are not to be made by the user.

(4) For personal safety, use a belt attachment or carrying case when working under dusty conditions or near machines. This will keep both hands free for other activities.

C. Professionalism on the Air.

(1) Use radio equipment for official business only.

(2) Communications are subject to monitoring by the Office of Telecommunications, Department of Commerce, to ensure that we are using our frequency in accordance with the regulations and procedures of the Office of Telecommunications policy.

(3) The transmission of obscene, indecent, or profane language, or of false or deceptive signals or call letters, or malicious interference is expressly prohibited by the Agency. Violation of these standards can result in disciplinary action.

7. OPERATIONAL MODES

a. Simplex.

(1) The use of the simplex mode (communication between nonrepeater units) should be used for short-range communications; e.g., within elevators and shipboard to the inspection office.

(2) Reception will vary widely within a field office's area. Usually, communications are limited to line of sight. Rough terrain, tall buildings, or obstructions will decrease the reliability of communication with another radio. Usually, a short change in

location, such as moving to a doorway or higher elevation, will improve reception for both parties.

b. Repeater.

(1) The use of the repeater mode (communication through a repeater) should be limited to long-range communication, such as an elevator to the field office and rail yards to the field office.

(2) The output of a repeater is considerably stronger than that of a radio and, therefore, will normally override a signal from another radio operating simplex.

(3) To determine if you are in range of a repeater, set the radio's switch and immediately release. If you are within range, you will hear a short "hiss" signifying that the repeater has been accessed.

C. Points to Remember.

(1) Speak slowly and distinctly into the microphone.

(2) Identify who you are calling and who you are.

(3) Hold the microphone approximately 2-3 inches from your lips.

(4) Make your message short and to the point. Use authorized prowords (Attachment 2).

(5) Speak in plain language - DO NOT USE CODES.

(6) Report complaints of communications interference to your supervisor. The radio communications frequencies we use are dedicated governmental frequencies used only by FGIS personnel in the continental United States and the Canadian St. Lawrence Seaway. Interference with or by citizens band frequencies, commercial frequencies, or other governmental frequencies will be reported promptly to WEB.

8. MAINTENANCE AND CARE OF EQUIPMENT

a. Security. When transporting radios, always use the belt attachment or carrying case to ensure the radio is secure. Never leave the radio unattended or loan it to anyone. Remember, you are responsible.

b. Adjustments. Use care when adjusting the radio settings, switching antennas, changing batteries, etc. Never open the radio case.

c. Battery Charging.

(1) To ensure optimum radio capability and performance, the nickel-cadmium battery should always be fully charged before use. However, the user must be aware of the following potential problems which could adversely affect the charging capacity and performance of a battery:

(a) Charging should be started when the battery is at room temperature. Charging a cold battery (below 45 degrees F.) can result in damage to, and ultimately, failure of the battery. Charging of a hot battery (above 95 degrees F.) will result in a reduced length of time a charge is held.

(b) A nickel-cadmium battery is said to be exhibiting memory effect when its apparent capacity (length of time it holds a charge) has been reduced by continuous overcharge or repetitive shallow cycling. If an infrequently used battery is allowed to charge over a long period, the battery voltage may be sufficiently depressed to reduce the effectiveness of your radio transmission. Batteries, which are replaced after being used for only 50 percent of the time a charge is held, may show a decrease in the length of time the battery holds a charge.

(2) Memory effect can be eliminated by allowing the battery to run down completely using an unsquelched radio followed by a normal full charge. One or two deep cycles (no charge to full charge) are usually sufficient to eliminate memory effect. Any nickel-cadmium battery which shows early signs of reduced capacity should be checked for memorization by the above-mentioned process before being discarded.

(3) Approximately 80 percent of the battery's capacity should be used before it is recharged.

How do you know when a battery is approximately 80 percent? A NEW battery, if used in a 10-10-80 duty cycle (10 percent transmit - 10 percent receive - 80 percent standby) on a standard shift should last 8 hours. This means it will probably transmit 20 to 50 times (4 to 8 seconds duration,) the receiver will receive approximately 30 to 70 audio messages and the rest of the time the radio will be quiet (standby). If on a very active channel, 20 percent to 30 percent of the time may be used for receiving; therefore F transmittal time remains at 10 percent, the standby time will be decreased to 50 or 60 percent.

If your usage fits into the above category, it would be proper to recharge the battery ,after each 8-hour shift.

Memory effect can occur when a radio transmits just a few times on an inactive channel and the duty cycle is 1 percent transmit, 1 percent receive, and 98 percent standby. If your radio usage fits into the above category and the radio is consistently put back in the charger, after a few months the radio will develop a memory. The battery will drop to about 1 percent to 2 percent: capacity, which means that after it is removed from the charger, the battery will go dead very quickly. A worse situation is if it is kept in the charger all of the time and removed just to talk. This procedure quickly causes development of a memory.

It has been found through experience that each individual cannot predict how much he/she will use his/her radio. However, daily patterns of radio usage are usually consistent and normally increase only during emergencies. It is advised that radios be used until they alarm and a note be made of the time actually used. A schedule of charging can then be set up. Example: If the radio is used for 10-14 hours and it alarms, then it should be recharged after each 8-hour shift. Good judgment should be used. If this procedure is used for a test, a spare battery must be available to use when the battery alarms.

d. Repairs. Any malfunctioning radio equipment must be reported to the supervisor. EMPLOYEES MUST NOT ATTEMPT TO REPAIR RADIOS.

(1) All malfunctioning radios and battery chargers should be taken to or mailed to the nearest authorized GE radio repair facility for a written estimate of repair cost prior to any

authorization of repairs. If the cost of repairs exceeds one-half the value of the radio (approximate value, $490), do not authorize any repairs. The radio should then be returned to the field office for disposal through the proper channels.

(2) When taking or sending a radio in for repair, include as accurate a description of the problem as possible.

(3) When shipping radio equipment for repairs, remove the battery and pack the radio carefully. Indicate on the certified return receipt the serial numbers of the radios shipped, if applicable, and retain the receipt as proof of shipment until the repaired radios are returned.

(4) Complete a Form AD-107, Report of Transfer or Other Disposition or Construction of Property, for radios found to be unrepairable.

(5) At the FOM's discretion, a service contract may be purchased for repeaters and base stations. If a base station or repeater station is under a local service contract, contact the contractor when problems arise. If not under a service contract, call the nearest radio manufacturer's approved service representative.

(6) If the equipment is unrepairable, the field office will:

(a) Return the radio(s) to WEB so they can be deprogrammed. After the deprogramming, the radio(s) will be returned to the field office for disposition through the proper channels as mentioned below.

(b) Prepare and submit a Form AD-112 to APHIS, FSO, Property Section, for authorization to cannibalize for serviceable parts.

(c) Send a copy of the completed Form AD-112 to the field office responsible for the equipment as notification that the equipment is unrepairable and will not be returned.

/s/ David Orr
Deputy Director

Attachments

USDA-APHIS

REQUEST FOR RADIO FREQUENCY ASSIGNMENT OR MODIFICATION

(APHIS Directive 260.2)

INSTRUCTIONS: Applicant - submit in triplicate to Program Director. Program Director - forward original and one copy to Administrative Services Division, Radio Communications Manager, Mission, Texas. For systems using only portable and/or mobile equipment do not complete items 10 through 18.

1. REQUEST FOR *("X" one. If Modification, give authorization number)*	2. REQUESTING ORGANIZATION	3. OPERATING UNIT
☐ New ☐ Termination ☐ Modification *(auth. no.)*.....		
4. LOCATION OF STATION *(State and County)*	**5. CITY AND/OR P.O. ADDRESS**	

TRANSMISSION DATA

6. TRANSMITTER LOCATION	7. LATITUDE				8. LONGITUDE				9. AREA OF OPERATIONS *(Radius)*	10. FREQUENCY *(If known)*
	Degrees	Minutes	Seconds	N	Degrees	Minutes	Seconds	W		

ANTENNA DATA				SYSTEMS DATA	
11. HEIGHT ABOVE GROUND LEVEL *(Feet)*	12. HEIGHT ABOVE MEAN SEA LEVEL *(Feet)*	13. GENERIC NAME OF ANTENNA TYPE *(If not known use trade name and model number)*		TRANSMITTING POWER OUTPUT *(Watts)*	
				18. Base Station	19. Mobile and/or Portable Radio
14. ANTENNA GAIN IN db	15. RADIATION PATTERN OF ANTENNA ☐ OMNI ☐ Directional	16. AZIMUTH OF MAIN LOBE FOR DIRECTIONAL ANTENNAS *(Degrees)*	17. TYPE OF EMISSION	20. NO. OF MOBILE AND/OR PORTABLE RADIOS USED IN THIS SYSTEM	

21. BRIEF DESCRIPTION OF PROPOSED RADIO USE

22. SIGNATURE OF APPLICANT	23. TITLE	24. DATE SIGNED
TEL. NO.....		

REQUESTING PROGRAM APPROVAL

25. SIGNATURE	26. TITLE	27. DATE SIGNED

ASD RADIO COMMUNICATIONS MANAGER CLEARANCE

28. SIGNATURE	29. TITLE	30. DATE SIGNED

APHIS FORM 200-R *(Photocopy Reproduction Authorized)* *Previous edition obsolete.*
(SEP 84)

AUTHORIZED PROWORDS' MEANINGS

FGIS 228.1
Attachment 2

BREAK I have a priority message. (Care to be used with this proword.)

I SAY AGAIN I am repeating a part or all of my previous transmission.

OUT End of transmission, I do not want or need an answer.

OVER Go ahead, this is the end of my transmission to you and I expect you to respond.

SAY AGAIN Used to request a station to repeat all or a portion of a transmission.

THIS IS Used to precede the identity of a station, such as, "This is Unit 21, or "Unit 2, this is Unit 1."

WAIT I must pause for a few seconds.

DEFINITIONS

SQUELCH A control which the operator uses to eliminate the background noise (hiss) of the radio receiver.

REPEATER A receiver/transmitter used to receive a signal and retransmit it with greater power. It is used primarily to increase transmission range.

CHANNEL A specific frequency used for communications, usually designated by a number or letter (i.e., Channel 1, 2, or Channel A, B.)